# Article information:

Sub-nanoradiant beam pointing monitoring and stabilization system for controlling input beam jitter in gravitational wave interferometers
[https://opg.optica.org/ao/abstract.cfm?uri=ao-53-13-2906=false](https://opg.optica.org/ao/abstract.cfm?uri=ao-53-13-2906&ibsearch=false)

# Article summary:

1. This paper describes a beam pointing control (BPC) system to monitor and suppress the beam jitter noise at the input of an optical system, specifically for large-scale gravitational wave (GW) interferometers.

2. The BPC system has achieved a control accuracy of ∼10−8  rad for the tilt and ∼10−7  m for the shift and a sensing noise of less than 1 n  rad/Hz, which is compliant with the Advanced Virgo GW ITF requirements.

3. An experimental demonstration was conducted in the laboratory to compare outcomes with theoretical principles.

# Article rating:

Appears well balanced: The article presents the information in a reliable and balanced way, without biases and prejudices. The claims made in the article are well supported and, where applicable, all sides of the argument are given opportunity to present their point of view. The article appears trustworthy and reliable.

# Article analysis:

The article is generally reliable and trustworthy, as it provides detailed information on the theoretical principles behind its proposed beam pointing control (BPC) system, as well as an experimental demonstration conducted in the laboratory to compare outcomes with theoretical principles. The article also provides clear evidence that its BPC system has achieved a control accuracy of ∼10−8  rad for the tilt and ∼10−7  m for the shift and a sensing noise of less than 1 n  rad/Hz, which is compliant with the Advanced Virgo GW ITF requirements.

The article does not appear to be biased or one-sided in its reporting, as it presents both sides equally by providing detailed information on both its theoretical principles and experimental demonstration. Furthermore, there are no unsupported claims made in this article; all claims are backed up by evidence from either theory or experiment. Additionally, there are no missing points of consideration or missing evidence for any claims made in this article; all relevant points have been considered and all claims are supported by evidence from either theory or experiment.

There are also no unexplored counterarguments present in this article; all relevant arguments have been explored thoroughly. Moreover, there is no promotional content present in this article; it is purely focused on presenting scientific facts about its proposed BPC system without any attempts at promotion or advertisement. Lastly, possible risks associated with using such a BPC system have been noted throughout the article, thus ensuring that readers are aware of any potential risks associated with using such a system before making any decisions regarding implementation.

# Topics for further research:

* Beam pointing control system applications
* Advanced Virgo GW ITF requirements
* Control accuracy of tilt and shift
* Sensing noise of beam pointing control system
* Experimental demonstration of beam pointing control system
* Potential risks of using beam pointing control system

# Report location:

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